Strategies for Networked Learning in Social Science Education

Philipp Budka  
University of Vienna  
Vienna, Austria  
philipp.budka@univie.ac.at

Elke Mader  
University of Vienna  
Vienna, Austria  
elke.mader@univie.ac.at

Elisabeth Anderl  
University of Vienna  
Vienna, Austria  
elisabeth.anderl@univie.ac.at

Johann Stockinger  
University of Vienna / Austrian Computer Society  
Vienna, Austria  
johann.stockinger@univie.ac.at

Abstract: The e-learning project “Strategies for Networked Learning” (http://www.univie.ac.at/ksa/e-learning) aims to develop strategies to include selected online learning tools, methods, and technologies into the teaching and learning practices of undergraduate social anthropology students at the Faculty of Social Sciences of the University of Vienna. To achieve this objective, a learning environment has been created, which has been tested and evaluated in the scope of several blended learning scenarios.

Introduction

This paper introduces an online learning environment, which has been created at the Department of Social and Cultural Anthropology of the University of Vienna, Austria. After presenting the organizational and technological infrastructure as well as the process of learning content production, we are going to outline strategies that have been developed within this e-learning project. Finally, the major outcomes of an evaluation of several blended learning scenarios, which included almost 900 social anthropology students, will be discussed.

Strategies for networked learning

The e-learning project “Strategies for Networked Learning” (http://www.univie.ac.at/ksa/e-learning) aims to develop strategies to include selected e-learning and online learning tools, methods, and technologies in the most useful and efficient way into the teaching and learning practices of undergraduate social anthropology students. To achieve this objective, a learning environment has been created, which comprises different learning tools:

- an open and free to use web-based hypermedia content pool (CP), which contains interconnected learning units that are produced by a team of teachers/authors of the Department of Social and Cultural Anthropology,
- the official learning management system (LMS) of the University of Vienna: WebCT Vista (since Summer 2007 Blackboard Vista), and
- selected wiki systems, which allow for collaborative learning and knowledge production.

These instruments are used by teachers to construct various blended learning scenarios, meaning in the context of e-learning the useful mixture/blending of face-to-face and online phases in education (e.g. Lorenz et al. 2004). A group of
teachers at the Department of Social and Cultural Anthropology also became authors of online learning content to which we refer in this project as learning units. Since the majority of teachers had no experience with producing learning material for the World Wide Web, they were introduced to a special authoring tool, which was already used and successfully evaluated in previous e-learning projects (e.g. Budka et al. 2005, Mader et al. 2004). This tool – the MindManager (http://www.mindjet.com) – is able to create mind maps which not only enhances creativity, but also enables the construction of hierarchical structures in a highly visual format. Authors can also easily connect text modules and elements to a hypertext structure without necessarily knowing HTML.

Producing online learning content

Within several workshops teachers/authors learned to use this authoring tool as well as the basic principles of creating texts for the World Wide Web. A team of editors constantly guided and supported the authors through the various stages of content production.

The MindManager allows creating documents in a hypertext structure that enables the authors to produce HTML prototypes of the learning units and test them before they are integrated into the e-learning environment. The content can therefore be evaluated and refined at various stages of production. Additionally, the MindManager’s RTF export function allows the user to create also traditional course scripts (e.g. PDF or DOC documents).

To generate hypermedia learning units, the mind maps created with the MindManager are exported to XML (Extensible Markup Language) by PHP scripting and stored in a database. The database’s design allows the direct integration of metadata (Dublin Core Standard, LOM, etc.), multimedia objects, such as images and bibliographic data, etc. Interconnected XHTML documents are then automatically generated from the database to be published on the World Wide Web. This system of learning material generation, which we call M2OST (Mindmap to Online Studies), is also able to integrate SCORM (Sharable Content Object Reference Model) content packages that can be imported into LMS (Budka et al. 2005). The formatting of the documents is accomplished through CSS (Cascading Style Sheets) to make the content fully accessible according to the Web Content Accessibility Guidelines of the World Wide Web Consortium (W3C 1999).

Evaluating blended learning scenarios

The e-learning tools used within the project’s blended learning scenarios facilitate different “modes of interaction”, introduced by Anderson (2003a, 2003b) in the context of student-centred distance education: (1) student-content interaction, (2) student-student interaction, and (3) student-teacher interaction. Within the context of our e-learning project, the hypermedia learning units allow in particular for student-content interaction, whereas the LMS contributes to teacher-student as well as student-student interaction by providing different communication tools.
Several courses implementing blended learning scenarios have been evaluated within the project by surveying almost 900 students over a period of 16 months (October 2006-January 2008). We are going to briefly discuss some of the evaluation’s major outcomes. The evaluation was conducted in different stages beginning in the winter semester 2006, where students’ usage and experience with the e-learning environment were questioned, and ending in the winter semester 2007, where students’ changing attitudes towards blended learning as method and concept in social science education were evaluated.

The blended learning scenarios selected for evaluation were realized by using (1) the LMS WebCT Vista / Blackboard Vista and (2) the hypermedia learning units in the context of different courses. The implementation of these e-learning elements within the blended learning scenarios was evaluated by students in respect to the structure and functional use, the utility, and the comprehensibility as well as the personal usage of different tools (for details see Budka et al. 2007). Since these e-learning tools were used in courses of different structure and format, they were also used in different ways. Whereas the learning units were used in all courses for preparing for the final exam at the end of the semester, they were only used in prosemisars to do exercises and tasks during the semester (see Table 1).

![Usage of the hypermedia learning units](image)

**Table 1:** Usage of the learning units in lectures (LE) and proseminars (PS), N=333

Students were also asked to compare these blended learning courses with courses without e-learning elements. A majority of students considered e-learning supported lectures to provide better possibilities for information gathering. Two thirds of the students experienced no difference in regard to interaction with other students. A small majority of students experienced more interaction within e-learning courses with students and teachers. Students’ workload differs according to the format of the courses: proseminars with e-learning were experienced as more labour intensive; whereas lectures with e-learning seemed to provide less work for students (see Table 2).
We state a significant correlation between hypermedia learning units, their subject matters and the level of utilization within the blended learning scenarios. Students in courses of teachers who actively integrated the learning units into their didactical concepts, found the explanation, comprehensibility, and structure of the subject matter to be logical, not complicated, and easy to understand. Those teachers were either authors of this learning material, and therefore developed a perfect understanding of this hypertext, or they developed a deeper understanding of the learning units through their participation in the project’s workshops. Students in classes of teachers who were neither authoring learning material nor were involved in the e-learning project, experienced the learning content and the subject matters as more complicated, confusing, and unstructured. Students seem to reflect the level of identification teachers developed with the hypermedia learning material. In the context of the modes of interaction (Anderson 2003a, 2003b) in blended learning scenarios, it can be argued that a low level of teacher-content interaction directly results, through student-teacher interaction, in a low level of student-content interaction (cf. Budka et al. 2007).

It can be stated that students’ attitudes towards e-learning and blended learning is changing over a period of time. Within a group of students that was questioned at the beginning and at the end of a semester (N=115), several social factors, such as gender, age, experience, etc., could be identified for influencing the acceptance of e-learning. Students in a later year of study consider communication and collaboration through e-learning, for instance, more meaningful and useful than their inexperienced colleagues. This could be because of student’s changing needs in different stages of study, e.g. student beginners need more face-to-face communication and collaboration to orientate and network in the new social environment.

Conclusions

The e-learning project “Strategies for Networked Learning” is one of the first major steps in the systematic integration of online learning, e-learning and blended learning in social anthropology education at the University of Vienna. Since the learning environment constructed within this project is open and free to use, it can be easily expanded and interconnected to similar learning systems and environments at other educational institutions. It therefore holds the potential of being utilized in an interdisciplinary and transdisciplinary social sciences context.

As results of the evaluation show, it is necessary to develop flexible and individual blended learning scenarios by using e-learning tools, which can be combined and integrated into didactical concepts and models. Processes of identifying strategies, implementing tools and methods, and evaluating scenarios and models for e-learning in the social sciences need to be planned and conducted openly and holistic by integrating also the critical voices. Solely this way, e-learning will also find its place in technology critical environments such as social science education (cf. Budka 2006).
References


